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Liao L[1], Wang Y[1], Shi W[1]
1. *Dept of Urology, China Rehabilitation Research Centre, Capital Medical University, Beijing, China*

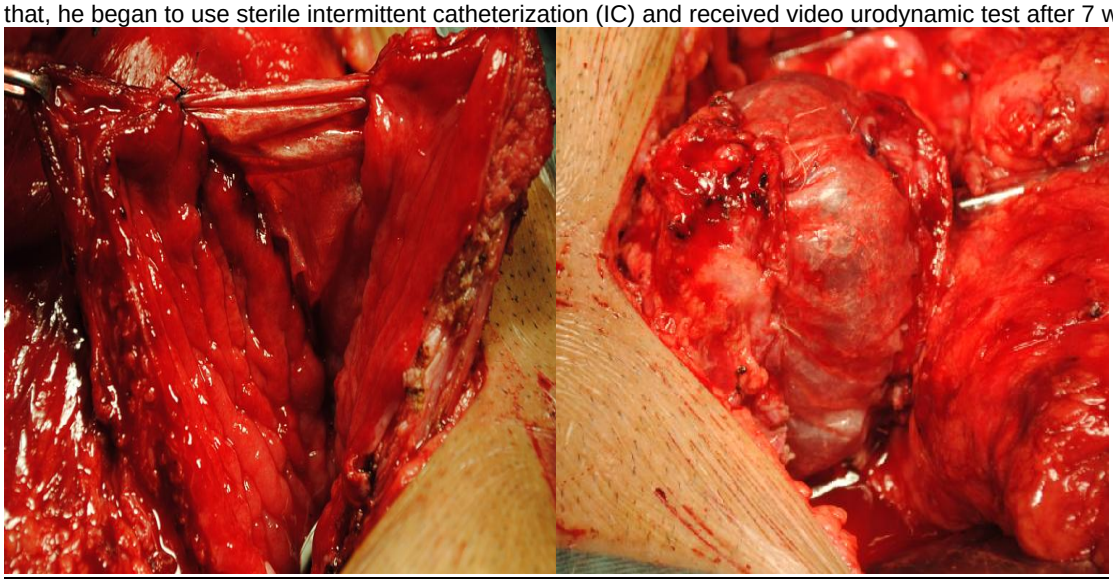
SMALL INTESTINAL SUBMUCOSA (SIS) USED IN AUGMENTATION CYSTOPLASTY OF HUMAN: CASE REPORT

Hypothesis / aims of study

Most common techniques of augmentation cystoplasty with intestinal tissues such as sigmoid colon are associated with various complications like intestinal obstruction, mucus formation, and electrolyte imbalance and so on. These terrible things definitely influence the quality of patients' life. To search a viable material alternative to the use of intestine in bladder reconstruction, we did the basic research on the small intestinal submucosa (SIS) regenerated rabbit bladder tissue. The results were good, so we chose one suitable patient who was voluntary to participate in our study, and did operation of SIS augmentation cystoplasty. The aim of this study was to investigate the functional and histological characteristics of small intestine submucosa (SIS) as bladder wall replacement in human augmentation cystoplsty.

Study design, materials and methods

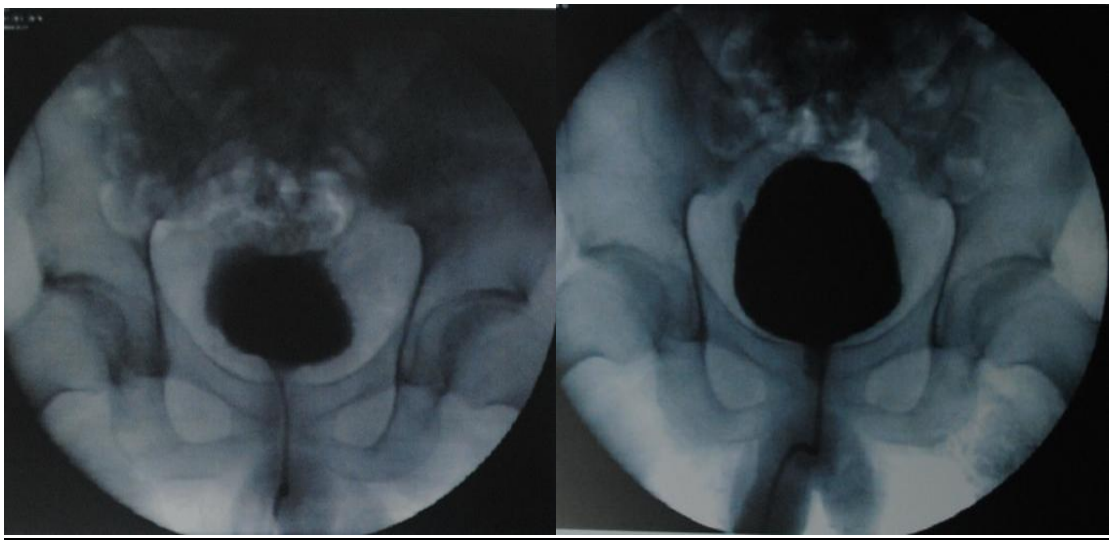
A 24-year-old male patient, 3 years after T9 spinal cord injury. He was diagnosed as neurogenic bladder, T9 spinal cord injury (ASIA was grade A). The patient was admitted to choose sterile intermittent catheterization 3 times per day during last 3 years. The patient was received video urodynamics examination before the operation. Right ureter reflux was found. The patient agreed with augmentation cystoplasty using small intestinal submucosa (SIS). He received ventral bladder horizontal section and two sheets of four layer of SIS (COOK®, 7×2.5cm) were sewn to bladder with 1/0 vicryl suture material in a watertight manner(one sheet was shown in left figure, and the other was shown in right figure). We also did right anti-reflux ureteral reimplantation. Then the patient received cystoscopy to remove the D-J tube in right ureter after 6 weeks of operation. After that, he began to use sterile intermittent catheterization (IC) and received video urodynamic test after 7 weeks of the operation.



Results

Cystoscopy showed that there were no perforation and contracture in the new bladder.

The video urodynamics examination indicated that the new bladder had larger capacity and its shape was more round (preoperation as the left figure, postoperation as the right figure). And we also found that the right ureter reflux had been disappeared. Average volume for IC was around 500 ml.



Interpretation of results

In this study, the bladder volume and DLPP after operation were not comparable with those of preoperation due to the right ureter reflux. But the image showed that the new bladder had a large figure. And the range for volume of IC was 400-500ml. This case showed us a successful cystoplasty using tissue engineering.

Concluding message

The results obtained from this study indicated that (1) the regenerated bladder had larger capacity and no perforation and contracture; (2) SIS seems to be a viable alternative to the use of intestine in the reconstruction of the urinary system, but long-term follow-up and more detailed investigations should be carried out.

Specify source of funding or grant	**No**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Ethics Committee at CRRC**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**